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REMARKS

In response to the Office Action mailed September 8, 2008, Applicant respectfully requests reconsideration. To further the prosecution of this Application, Applicant submits the following remarks and has added new claims. The claims as now presented are believed to be in allowable condition.

Claims 1-53 were pending in this Application. By this Amendment, claim 1 has been amended. Support for the amendment is provided within the Specification, for example, on page 4, paragraph 0004. Claims 54-56 have been added. Accordingly, claims 1-56 are now pending in this Application. Claims 1, 20, and 37 are independent claims.

Claim Objections

Claims 2 and 3 were objected to because the Office Action deemed the terminology "and links" as redundant. Claim 2 has been amended in accordance with the suggestions provided in the Office Action. The amendment should in no way be construed as an acquiescence to the objection and was done solely to expedite prosecution of the Application. The amendment does not add new matter to the Application and does not raise new issues requiring further searching and consideration. The objection to claims 2 and 3 should be withdrawn.

Rejections under §102 and §103

Claims 1, 2, 4, 5, 15 and 16 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2004-0184518 to Agazzi (hereinafter Agazzi). Claims 3, 20-22, 32, 33, 37-39, 49 and 50 were rejected under 35 U.S.C. §102(e) as being anticipated by Agazzi and were rejected in the alternative under 35 U.S.C. §103(a) as being unpatentable over Agazzi. Claims 6, 23 and 40 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2005/0063479 to Propp et al.

(hereinafter Propp). Claims 7, 24 and 41 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2003/0194001 to Barksdale, Jr. (hereinafter Barksdale). Claims 8, 9, 17, 25, 26, 34, 42, 43 and 51 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2004/0095921 to Kerpez (hereinafter Kerpez). Claims 10, 27 and 44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent No. 6,512,746 to Sand (hereinafter Sand). Claims 11, 28 and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2004/0251913 to Pham et al. (hereinafter Pham). Claims 12, 29 and 46 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2008/0013110 to Wozniak et al. (hereinafter Wozniak). Claims 13, 30 and 47 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2004/0184620 to Johnson et al. (hereinafter Johnson). Claims 14, 19, 31, 36, 48 and 53 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent Publication No. 2001/0026150 to Klenner (hereinafter Klenner). Claims 18, 35 and 52 were rejected under 35 U.S.C. §103(a) as being unpatentable over Agazzi in view of U.S. Patent No. 4,858,224 to Nakano et al. (hereinafter Nakano).

Applicant respectfully traverses each of these rejections and requests reconsideration. The claims are in allowable condition.

Claim 1 was rejected as being anticipated by Agazzi. Claim 1 as amended relates to a physical layer device (PHY) that is capable of communicating at least about ten gigabits per second (10 Gb/s) and performing cable diagnostics on at least one of a plurality of transmission lines that form one of a corresponding plurality of links that is coupled to the PHY. The PHY comprises a transceiver section for each of the plurality of transmission lines, the

transceiver section has an input path and an output path and the transceiver section is capable of communicating and diagnosing at least one of the plurality of transmission lines. The input path comprises a receiver having an input coupled to the corresponding link, an analog-to-digital converter (ADC) having an input coupled to an output of the receiver, at least one far end cross talk (FEXT)/near end cross talk (NEXT) canceller section, an alien noise canceller section, and an equalizer section. The output path comprises a coding and preconditioning section, a digital-to-analog converter (DAC) having an input coupled to an output of the coding and preconditioning section, and a transmitter having an input coupled to an output of the DAC and having an output coupled to the corresponding link.

Agazzi relates to a startup protocol for initiating normal transmission between transceivers within a high throughput communications system.

Paragraph 0015. As recited in Agazzi:

[t]he sequence of events during the startup protocol of the present invention is shown in FIG. 13. The protocol consists of three phases 114, 116, 118 during which the receivers are trained, e.g., adaptive filters are converged, timing synchronization is acquired, etc., followed by normal operation which begins during phase four 120. Paragraph 0060.

Further in Agazzi:

In one embodiment of the protocol, the transition from the first phase 114 to the second phase 116, at both master and slave, occurs after a fixed and prespecified period of time. In a preferred embodiment, however, the slave transitions from the first phase 114 to second phase 116 when it detects that its receiver has converged the adaptive filters contained within its DFE, FFE and FEXT cancellation system (D) and has acquired timing synchronization (T). As previously mentioned, the master receiver includes a signal detector 41 (FIG. 7) which detects energy in the line coming from the slave. The master transitions from the first phase 114 to the second phase 116 when it detects this energy from the slave. Therefore, the slave takes the initiative in transitioning from the first phase 114 to the second phase 116, and

the master follows when it detects the signal from the slave.
Paragraph 0060.

While claim 1 was rejected as being anticipated by Agazzi, Agazzi does not teach or suggest all of the elements of the Applicant's claim 1. For example, Agazzi does not teach or suggest a physical layer device (PHY) having "a transceiver section for each of the plurality of transmission lines, the transceiver section ... capable of ... diagnosing at least one of the plurality of transmission lines," as claimed by the Applicant.

As indicated above, during the startup protocol of Agazzi, the master receiver includes a signal detector 41 which detects energy in the line coming from the slave. While Agazzi recites that the master transitions from the first phase 114 to the second phase 116 when it detects this energy from the slave, there is no teaching or suggestion in Agazzi of the signal detector 41 being "capable of ... diagnosing at least one of the plurality of transmission lines," as claimed by Applicant. Instead the signal detector 41 of Aggazzi merely receives the energy over the transmission lines. Aggazzi does not perform any other steps related to the lines themselves, contrary to the recitation of Applicant's claim 1. If the rejection of claim 1 is to be maintained, Applicant respectfully requests that it be pointed out with particularity where the cited prior art teaches a physical layer device (PHY) having "a transceiver section for each of the plurality of transmission lines, the transceiver section ... capable of ... diagnosing at least one of the plurality of transmission lines," as claimed by the Applicant.

For the reasons stated above, claim 1 as amended patentably distinguishes over the cited prior art, and the rejection of claim 1 under 35 U.S.C. §102(e) should be withdrawn. Accordingly, claim 1 is in allowable condition. Because claims 2-19 depend from and further limit claim 1, claims 2-19 are in allowable condition for at least the same reasons.

Claims 20 and 37 were rejected under 35 U.S.C. §102(e) as being anticipated by Agazzi and were rejected, in the alternative, under 35 U.S.C. §103(a) as being unpatentable over Agazzi. Taking claim 20 as an example claim, claim 20 relates to a method of performing cable diagnostics in a communications system that is capable of communicating at least about ten gigabits per second (10 Gb/s), the system comprises a physical layer device (PHY) and four transmission lines that each form a corresponding link for a total of four links, each of the transmission lines is coupled to the PHY, the PHY comprises a transceiver section for each of the transmission lines for a total of four transceiver sections, the four transceiver sections combined comprise four receivers, four analog-to-digital converters (ADC), six far end cross talk (FEXT)/near end cross talk (NEXT) canceller sections, an alien noise canceller section, four equalizer sections, four coding and preconditioning sections, four digital-to-analog converters (DAC), and four transmitters, the method comprising performing cable diagnostics by utilizing the PHY to characterize at least one of the four links.

While claims 20 and 37 were rejected as being anticipated and/or unpatentable over Agazzi, Agazzi does not teach or suggest all of the elements of the Applicant's claims 20 and 37. For example, Agazzi does not teach or suggest "performing cable diagnostics by utilizing the PHY to characterize at least one of the four links," as claimed by the Applicant.

With respect to the rejection of claims 20 and 37, the Office Action on pages 7 and 8 asserts that the signal detector 41 in paragraph 0061 of Agazzi performs "cable diagnostics by utilizing the PHY to characterize at least one of the four links." The Applicant respectfully disagrees with such an assertion. As indicated above, during the startup protocol in Agazzi, the master receiver includes a signal detector 41 which detects energy in the line coming from the

slave. While Agazzi recites that the master transitions from the first phase 114 to the second phase 116 when it detects this energy from the slave, there is no teaching or suggestion in Agazzi of the signal detector 41 as “performing cable diagnostics by utilizing the PHY to characterize at least one of the four links,” as claimed by the Applicant. Instead the signal detector 41 of Aggazzi merely receives the energy over the transmission lines. Aggazzi does not perform any other steps related to the links themselves, contrary to the recitation of Applicant’s claims 20 and 37. If the rejection of claims 20 and 37 are to be maintained, Applicant respectfully requests that it be pointed out with particularity where the cited prior art teaches “performing cable diagnostics by utilizing the PHY to characterize at least one of the four links,” as claimed by the Applicant.

For the reasons stated above, claims 20 and 37 patentably distinguish over the cited prior art, and the rejection of claims 20 and 37 under 35 U.S.C. §102 (e) and/or §103(a) should be withdrawn. Accordingly, claims 20 and 37 are in allowable condition. Because claims 21-36 depend from and further limit claim 20, claims 21-36 are in allowable condition for at least the same reasons. Because claims 38-53 depend from and further limit claim 37, claims 38-53 are in allowable condition for at least the same reasons.

Newly Added Claims

Claims 54-56 have been added and are believed to be in allowable condition. Claims 54 and 55 depend from claim 1 while claim 56 depends from claim 20. Support for claim 54 is provided within the Specification, for example, in Paragraph 0011. Support for claims 55 and 56 is provided within the Specification, for example, in Paragraphs 0017 and 0024. No new matter has been added.

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Conclusion

In view of the foregoing remarks, this Application should be in condition for allowance. A Notice to this effect is respectfully requested. If the Examiner believes, after this Response, that the Application is not in condition for allowance, the Examiner is respectfully requested to call the Applicant's Representative at the number below.

Applicant hereby petitions for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this Response, including an extension fee, please charge any deficiency to Deposit Account No. 50-3661.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 616-2900, in Westborough, Massachusetts.

Respectfully submitted,

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